CHAPTER 9. PROVING AND VALIDATION TESTS

SECTION 8. VALIDATION TEST REQUIREMENTS

1655. GENERAL. This section contains guidance to be used by managers and inspectors for conducting validation tests. This guidance supplements the general guidance of section 2 and the reporting guidance of section 6 of this chapter.

A. Regulatory Background. Various regulations, such as FAR 121.93, 121.113, and 135.13(a)(2), require applicants to show the capability to conduct specific line operations safely and in compliance with regulatory requirements. One process by which an applicant demonstrates this capability to the FAA has come to be known as validation testing.

NOTE: The term, "applicant," as used in this section, means either a candidate applying for an operating certificate or a certificate holder requesting additional operating authority.

(1) Validation Flights. The most common method used by the FAA to validate an applicant's capability is to observe the applicant conduct flight operations. The FAA normally requires validation flights before initially issuing operations specifications (OpSpecs) paragraph B36, which authorizes operations beyond the scope of Class I navigation, or before granting authority (in paragraph B50) to conduct operations beyond the populated areas of the North American continent.

(2) Validation Testing. The FAR do not require an applicant to conduct actual flights when flights are not necessary for safety, considering the availability of adequate facilities and of able personnel to conduct the operation. Validation flights are expensive for the FAA and for the applicant. Inspectors should, therefore, avoid requiring applicants to conduct flights when they are not required. This section contains guidelines for teams to use in making this determination. In the interest of standardized treatment, Regional Flight Standards Divisions (RFSD) shall concur with team recommendations before teams deviate from the guidelines of this section.

(3) Areas of Emphasis. When the FAA conducts validation testing with or without an actual flight, an in-depth review is conducted of the applicable portions of the applicant's proposed procedures (especially flight following), training programs, manuals, facilities, and maintenance programs.

B. Combined Proving and Validation Flights. Proving flights are conducted to show the applicant's capability to operate a specific type of aircraft. Validation tests are conducted so that an applicant can demonstrate its capability to operate over specific routes while using specific navigational equipment, or to operate within specified limitations in critical areas. Though proving and validation tests satisfy different regulatory requirements, it is acceptable for applicants to conduct both tests simultaneously.

1657. SITUATIONS REQUIRING VALIDATION TESTS OR FLIGHTS. This paragraph contains guidance for inspectors and test team leaders concerning those situations where validation flights or tests are required for compliance with FAR 121.93, 121.113, and 135.13(a)(2).

A. Operations Outside U.S. Airspace. When an applicant plans to operate to a destination outside of U.S. airspace, the test team must verify that the applicant has the required economic authority, knowledge of applicable national operating rules, and has completed adequate planning for the proposed operation. Normally, validation for this purpose alone does not require a flight.

B. Class II Navigation Authorizations. There are four situations in which validation testing is required in association with approval of Class II navigation (see also paragraph 1659):

- Initial approval
- Approval of the addition of a long-range navigation system or a flight navigator
- Operations into new areas
- The addition of special or unique navigation procedures

NOTE: Validation test team leaders involved in route or area approvals shall consult an FAA navigation specialist by telephone at one of the following two locations: the San Francisco (SFO) International Field Office (IFO)

at (415) 876-2765, or the New York (NYC) Flight Standards District Office (FSDO)-15 at (718) 553-1848, or with the AFS-510 operations section at (703) 661-0333. Test team leaders involved in validations covered in subparagraphs C and D should consult with AFS-510.

C. Special Performance Authorizations. Validation tests are required when an applicant proposes to conduct operations that require confirmation of the applicant's ability to operate an aircraft type within specified performance limitations. These limitations are based on the following situations (see also paragraph 1661):

- Character of the terrain (or extended over-water areas)
- Type of operation
- Performance of the aircraft

D. Special Operational Authorizations. Validation tests are required when an applicant proposes to conduct in-flight or ground maneuvers that require special operational authorizations (see paragraph 1663).

1659. CLASS II NAVIGATION AUTHORIZATIONS. When applicants are initially certificated, they are issued OpSpecs paragraphs that authorize Class I navigation. Before adding a geographic area to OpSpecs paragraph B50, in which Class II navigation is required, test teams must validate the applicant's capability to safely conduct these operations. (See volume 4, chapter 1 for a definition of Class II navigation.)

A. Initial Approval. When an applicant has no prior authorization to conduct Class II navigation, a validation flight is normally required before the team may issue OpSpecs paragraph B36 or add appropriate geographic areas to paragraph B50. These areas include the following:

- Remote and extensive land areas not served by reliable International Civil Aviation Organization (ICAO) surface-based navigational aids (NAVAID)
- Extensive over-water areas beyond the range of surface-based navigation facilities

B. Authorization for Long-Range Navigation Systems or a Flight Navigator. Validation is required when an applicant that already has Class II navigation authorization proposes to add authorization for a new long-range system/aircraft combination or an authorization for a flight navigator to OpSpecs paragraph B36.

(1) Long-Range Systems. Long-range navigation systems include the following:

- Loran-C
- Omega
- Inertial navigation systems (INS) and inertial reference systems (IRS)
- Doppler
- Global Navigation Satellite System (GNSS), when approved
- Any combination of the preceding systems

NOTE: For further guidance on any navigation system not listed here, contact AFS-510.

(2) Validation Testing in Lieu of a Validation Flight. When validation is conducted to add a new aircraft/navigation system combination to paragraph B36 of an applicant's OpSpecs, a validation is normally conducted by means of a flight. RFSD's may approve validation by means of testing, however, when the applicant can show that the combination of aircraft/navigation system and operation is not significantly different from those the applicant is currently authorized, or with which the applicant can show satisfactory current experience. When validation is conducted without a flight, the applicant must show training and qualification of flightcrews in accordance with FAA guidance material and acceptable equipment procedures (see paragraph 1667 in this section). Test teams can determine the current level of flightcrew training and qualification by conducting oral tests of knowledge and procedures and by evaluating flight records. The following examples are situations where validation testing may be authorized in lieu of validation flights:

- An applicant with a satisfactory history of conducting Class II navigation by using an LR-55/Delco Carousel IV INS combination proposes to add the Delco IV INS to a G-II that the applicant is already authorized to operate in Class I airspace
- An applicant for an additional Class II route authorization under Part 135 can show a previous history of successful operation of that aircraft and equipment combination in extended Class II operations under Part 91

C. Additional Geographic Areas. Applicants requesting authority to operate in additional geographic areas (other than special areas) may normally be authorized to do so without the need to complete a validation flight. As a minimum for this situation, the test team must verify that the applicant has the required economic authority, knowledge of

applicable national operating rules, and has completed adequate planning for the proposed operation. Test teams may determine, however, that the specific circumstances require a flight.

D. Special Areas of Operation. Certain areas of Class II airspace are considered special operating airspace for purposes of validation.

(1) Extensive Areas of Magnetic Unreliability (OpSpecs paragraph B40). Due to the nature of the procedures involved, applicants are required to conduct validation flights through these areas before being issued OpSpecs paragraph B40. RFSD's may approve validation by means of testing in lieu of flights when an applicant that already holds OpSpecs paragraph B40 proposes to operate new combinations of aircraft and navigation systems in these areas. The applicant must show that the required procedures are not significantly different from those currently authorized.

(2) North Atlantic Minimum Navigation Performance Specifications (NAT/MNPS) Airspace and Canadian MNPS Airspace (OpSpecs paragraph B39). Approvals for these two blocks of airspace are normally conducted concurrently. Due to the navigational tolerances and the procedures involved, applicants are required to conduct validation flights through these areas before being initially authorized to conduct revenue operations in these areas. In some cases (such as with the use of Omega systems), the applicant may be required to conduct flights and collect data outside MNPS airspace before conducting a final validation flight through the airspace. Initial validation flights, as described in subparagraph A of this paragraph, may be conducted in North Atlantic or Canadian MNPS airspace if the required navigational accuracy was demonstrated before the supplemental type certificate (STC) was issued. An applicant for an authorization to operate new combinations of aircraft and navigation systems (an applicant that already holds OpSpecs paragraph B39) may be required to conduct validation flights to have that combination added to paragraph B36, but the applicant is not normally required to conduct those flights through MNPS airspace.

NOTE: Inspectors should inform operators seeking MNPS approval that they should collect Omega data in North Atlantic airspace, either under or over MNPS airspace.

(3) Central East Pacific (CEPAC) Composite Airspace (OpSpecs paragraph B37) and North Pacific (NOPAC) Airspace (OpSpecs paragraph B38). During validation for approval of CEPAC and NOPAC areas, test teams should focus on flight planning, especially for engine-out and loss of pressurization contingencies. An applicant that already holds OpSpecs paragraph B36 and has a satisfactory operating history in extended Class II navigation is normally not required to conduct a validation flight to be issued CEPAC or NOPAC operating authorization. An applicant for an authorization to operate new combinations of aircraft and navigation systems may be required to conduct validation flights before that combination is added to paragraph B36, but the applicant is not normally required to conduct those flights through CEPAC or NOPAC airspace.

(4) Arctic Ocean and Antarctica Airspace (OpSpecs Paragraph B50 and Usually B36 and B40). Applicants proposing to conduct terminal area operations within these areas are normally required to conduct validation flights. Applicants conducting over-flight but not terminal area operations are not required to conduct validation flights. During validation for approval of over-flight of these areas, test teams should focus on flight planning, especially for engine-out, loss of pressurization contingencies, and emergency airfield procedures.

NOTE: Arctic and Antarctic operating approvals are separate and distinct from approval for areas of magnetic unreliability.

(5) Caribbean Sea, Gulf of Mexico, and the Atlantic Ocean West of the MNPS Boundary. For operations into these areas, two independent high frequency (HF) transceivers are required; however, applicants may obtain the Air Transport Association of America (ATA) exemption from AFS-240 in order to operate in this area with one HF transceiver. An applicant may apply for approval to conduct Class II navigation across the Gulf of Mexico by using dead reckoning (DR) navigation supplemented by a GNSS receiver that meets the requirements of Technical Standard Order (TSO) C-129. Approval for this type of operation requires an amendment to the operator's OpSpecs. Under these circumstances, a flight may be outside Class I airspace for not more than 1 hour and must be on a direct route between two surface-based NAVAID's. Authorized routes are as follows: published, direct, very high frequency omnidirectional range (VOR) and low frequency airways between the coasts of Louisiana and Florida and between Texas and the Yucatan peninsula (see also volume 4, paragraph 161B). This approval does not require a proving flight when the following circumstances exist:

- The applicant has developed acceptable procedures for this type of operation
- The applicant has an approved training program for these procedures
- Each pilot-in-command (PIC) and second-in-command (SIC) demonstrates to a check

airman proficiency in the procedures for these operations

(6) Politically Sensitive Areas of Operation. When an inspector requires information concerning an operator's request to conduct operations into sensitive international areas, the inspector should follow the guidance in volume 4, chapter 1, section 5, paragraph 157.

E. Special or Unique Navigation Procedures. Validation flights are normally required when an applicant proposes to use navigation procedures that have not been previously demonstrated. These procedures include the following:

- Pilotage, including dead reckoning (DR)
- Flight navigator procedures
- Celestial navigation
- Pressure pattern and Bellamy drift DR
- Free gyro or grid procedures
- Any combination of the preceding procedures

1661. SPECIAL PERFORMANCE AUTHORIZATIONS. The following are examples of operational situations that normally require validation tests and special performance authorizations for each type of aircraft to be used by an applicant:

- Terminal area operations in areas of mountainous terrain requiring drift-down or specialized contingency procedures
- Part 121 operations in the North Atlantic Area of Operations (NAT-OPS) when all points on routes are within 60 minutes of an adequate airport (OpSpecs paragraph B41)
- Part 121 extended-range operations with two-engine airplanes (ETOPS) over routes containing a point farther than 60 minutes' flying time from an adequate airport (deviation from FAR 121.161) (OpSpecs paragraph B42)
- High altitude airport operations (OpSpecs paragraph TBD)
- Powerback operations (reverse thrust taxi) (OpSpecs paragraph C65)
- Unimproved runway operations (OpSpecs paragraph TBD)
- Helicopter or seaplane operations in highly congested urban areas (OpSpecs paragraph TBD)

1663. SPECIAL OPERATIONAL AUTHORIZATION. Validation tests are normally required when proposed operational situations require special equipment and a special operational authorization for each type of aircraft used. Some examples follow:

- Category II instrument approach and landing systems (OpSpecs paragraph C59)
- Category III instrument approach and landing systems (OpSpecs paragraph C60)
- Use of automatic landing systems for landing operations (OpSpecs paragraph C61)
- Use of manually flown flight control guidance systems approved for landing operations (heads-up or heads-down flight control systems) (OpSpecs paragraph C62)
- Use of airborne radar approach (ARA) systems (OpSpecs paragraph TBD)
- Area navigation (RNAV) systems certified in accordance with Advisory Circular (AC) 90-45, Approval of Area Navigation Systems for Use in the U.S. National Airspace System, (OpSpecs paragraph B34)
- Use of RNAV systems for approach and landing operations (OpSpecs paragraph B34)

1665. PLANNING THE VALIDATION TESTS. An applicant that is required to conduct a validation test must develop and submit a test plan. The plan and test objectives must be specifically tailored to the situation. The following guidelines should be followed by the FAA team and the applicant in planning validation tests:

A. Form and Content of the Test Plan. The variety of operational situations and requirements that determine the make-up of validation tests makes it impossible to specify the form and content for each validation test plan. Regulations; AC's; specific instructions in this handbook; FAA Order 8300.10, Airworthiness Inspector's Handbook; and other official sources have been developed to assist the applicant and FAA inspectors in determining the necessity of validation testing and the planning of validation tests. In many situations, these documents contain specific procedures that must be followed or that provide acceptable methods that an applicant can use to acquire a special authorization.

B. FAA Test Team and Applicant Coordination. The applicant and test team must agree on the form and content of the test plan, and they must establish mutual understandings of test objectives, the degree of demonstration required, and the criteria to be met. During development of the plan, the applicant should be encouraged to coordinate with and confer frequently with the FAA team concerning the make-up of the

validation tests and the methods to be used in conducting them.

C. Operational Demonstrations. Most validation tests will require some form of operational demonstration. When operational demonstrations are required, the validation test plan must include a schedule for those demonstrations.

D. Determining Number of Flight Hours. A required number of hours for a validation flight is not specified by regulation and must be determined on a case-by-case basis. When the test objectives can be adequately met, the test team may reduce flight hours to zero.

E. Revisions to Applicant Documents and Training Program. Most special authorizations require revisions to the applicant's checklists, minimum equipment lists (MEL), general operations manual (GOM), general maintenance manual (GMM), and training program. These revisions should be submitted with the validation test plan for FAA review and approval or acceptance, as appropriate.

F. Amendment to OpSpecs. All special authorizations require an amendment to the OpSpecs; the applicant should apply for the amendment at the same time the validation plan is submitted.

1667. AREAS EVALUATED ON VALIDATION TESTS OR FLIGHTS. The types of activities and items that need to be inspected and evaluated on validation tests or flights vary with the type of authorization requested by the applicant. The following list provides examples of activities and items requiring inspection and evaluation.

- Flightcrew training (and flight attendant training, if applicable)
- Operations manual information and crew procedures
- Checklists and MEL's
- Maintenance manual information and maintenance program
- Equipment certifications and installation approvals
- Reliability and accuracy of applicable operational and maintenance records
- Operational flight control and company communication capabilities
- Flightcrew competency in use of equipment, procedures, and techniques
- Coordination procedures between the flightcrew, maintenance personnel, and other ground personnel

1669. CARRIAGE OF REVENUE PASSEN-GERS ON VALIDATION FLIGHTS. The FAR do not forbid the carriage of revenue passengers on validation tests. With the concurrence of the respective RFSD, the test team may authorize the applicant to carry revenue passengers aboard the validation flight when the proposed operation is similar to those in the applicant's previous experience. This paragraph contains guidelines for teams to use in making this determination. In the interest of standardized treatment, RFSD's shall coordinate with AFS-510 when authorizing teams to deviate from these guidelines. AFS-510 will coordinate with other appropriate parties, including AFS-200.

A. Non-Permissible Situations. The carriage of revenue passengers shall not normally be permitted during validation tests in the following situations:

- When the applicant is seeking initial approval to conduct Class II navigation as described in paragraph 1659A
- When the applicant is seeking approval to conduct Class II navigation by a long-range navigation system or using a flight navigator when the applicant has not previously been approved for that means of navigation as described in paragraph 1659B
- When the applicant is seeking approval to conduct Class II navigation by means of a long-range navigation procedure that has not previously been approved for that applicant as described in paragraph 1659E
- When the applicant has not previously operated a specific aircraft type in operations that require a special performance authorization as described in paragraph 1661

B. Exceptions to Subparagraph A. In the preceding situations, test teams may consider permitting the carriage of revenue passengers if the applicant meets the following conditions:

(1) Use of a Previously Authorized System. For those applicants seeking approval to conduct Class II navigation by means of a new system of long-range navigation (using a flight navigator) or by means of a new procedure, the applicant may use a previously authorized navigation system as an independent means of verifying position.

(2) Previous Demonstration of Competence. For operations requiring a special performance authorization, the applicant must have already successfully demonstrated competence by safely conducting those operations, using the necessary special performance, in the specific aircraft. This may have been accom-

plished through an approved flight simulation test program, or in an actual aircraft flight test program (non-revenue) in the specific aircraft.

C. Special Operational Authorization. For operations requiring a special operational authorization for approach and landing operations (paragraph 1663), the carriage of revenue passengers should normally be permitted, provided higher minimums or visual flight rules (VFR) operations are specified during the validation tests.

D. Additional Considerations. The following factors should be considered in all cases:

- The applicant's previous experience with the proposed operation, the specific aircraft, and equipment combinations
- The FAA's previous experience with the proposed operation, the specific aircraft, and equipment combinations
- The in-service history and performance considerations of any new airplane, component, appliance, or other piece of equipment
- The degree of backup system redundancy and sole dependency of any particular system, appliance, or component

1671. SPECIAL AUTHORIZATIONS INFORMATION TABLES. The tables that follow in figures 3.9.8.1. through 3.9.8.3. are designed as a general information reference for validation tests. They are not intended as and must not be used as an all-inclusive source of information. Detailed guidance for various types of validation tests are provided in referenced AC's (see figure 3.9.8.4. for a listing of AC's applicable to various types of validation tests).

1672.-1680. RESERVED.

FIGURE 3.9.8.1.A.
QUICK REFERENCE FOR SPECIAL NAVIGATION AUTHORAZATIONS
A. AREAS REQUIRING SPECIAL NAVIGATIONAL EQUIPMENT OR PROCEDURES VALIDATION TESTS

SPECIAL AUTHORIZATIONS	OPERATIONS SPECIFICATIONS (OPSPECS) PARAGRAPHS	HIGHER HQTRS REVIEW AND CONCURRENCE	REVENUE PASSENGER CONSIDERATIONS	FAA DIRECTIVES, ADVISORY CIRCULAR (AC) REFERENCES	REMARKS
1. Extensive Land Areas with Inadequate NAVAID's to conduct Class I Nav or Class II Nav Supplemented by D.R. Procedures	B36 and B50	Not req'd	No revenue if aircraft and Nav equip. not previously approved for the area or a similar area for that applicant	Vol 4, chpt 1, sections 1, 2, and 4. AC 90-79 Other refs dependent on type of Nav equip. and areas (see following figures)	Usually requires Class II Nav equip. If Class II Nav equip. not required, special Nav procedures are required.
2. Extensive Over-Water Areas with Inadequate NAVAID's to conduct Class I or Class II Nav Supplemented by D.R. Procedures	B36 and B50	Not req'd	No revenue if aircraft and Nav equip. not previously approved for the area or a similar area for that applicant	Vol 4, chpt 1, sections 1, 2, and 4. AC 90-79,AC90-76 Other refs dependent on type of Nav equip. and areas (see following figures)	Usually requires Class II Nav equip. If Class II Nav equip. not required, special Nav procedures are required.
3. Extensive Areas of Magnetic Unreliability	B36, B40, and B50 B36 not req'd if Class II Nav equip. not required	RFSD	No revenue on flights into area if aircraft, Nav equip., and Nav procedures not previously approved for that applicant in areas of magnetic unreliability	Vol 4, chpt 1, sections 1, 2, and 4. AC 120-33	Usually requires Class II Nav equip. Special procedures requires, free gyro, grid, etc. Flight in reference to true north.
4. North Atlantic Minimum Navigation Performance Specifications (NAT/ MNPS) Airspace	B36, B39, and B50	RFSD	No revenue if aircraft and Nav equip. not previously approved for the area or a similar area for that applicant	Vol 4, chpt 1, sections 1, 2, and 4. AC 120-33	Class II Nav equip. required. No flight navigator. Pass/Fail criteria. Requires Pass criteria to be met before operating into area unless other approved Nav equip. used as primary.
5. Canadian MNPS Airspace	B36, B39, and B50 Usually req's B40	RFSD	No revenue on first flight in area of magnetic unreliability if aircraft, Nav equip., and Nav procedures not previously approved for the area for that applicant	Vol 4, chpt 1, sections 1, 2, and 4.)	Class II Nav equip. required. No flight navigator. Automatically approved if approved for NAT/MNPS. provided applicant not authorized in area of magnetic unreliability.

FIGURE 3.9.8.1.A.—Continued
QUICK REFERENCE FOR SPECIAL NAVIGATION AUTHORAZATIONS
A. AREAS REQUIRING SPECIAL NAVIGATIONAL EQUIPMENT OR PROCEDURES VALIDATION TESTS

SPECIAL AUTHORIZATIONS	OPERATIONS SPECIFICATIONS (OPSPECS) PARAGRAPHS	HIGHER HQTRS REVIEW AND CONCURRENCE	REVENUE PASSENGER CONSIDERATIONS	FAA DIRECTIVES, ADVISORY CIRCULAR (AC) REFERENCES	REMARKS
6. Central East Pacific Composite (CEPAC) Airspace	B36, B37, and B50	Not req'd.	No revenue if aircraft and Nav equip. not previously approved for the area or a similar area for that applicant	Vol 4, chpt. 1, sections 1, 2, and 4.	Usually requires Class II Nav equip. No flight navigator
7. North Pacific (NOPAC) Airspace	B36, B38, and B50	Not req'd.	No revenue if aircraft and Nav equip. not previously approved for the area or a similar area for that applicant	Vol 4, chpt. 1, sections 1, 2, and 4.	Class II Nav equip. required. No flight navigator above FL 280.
8. Arctic Ocean & Antarctic Airspace	B50 Usually req's B36 and B40	Not req'd for Arctic Ocean. Req'd for Antarctic airspace AFS-510.	No revenue if aircraft and Nav equip. not previously approved for the area or a similar area for that applicant	Vol 4, chpt. 1, sections 1, 2, and 4.	May involve flight into areas of magnetic unreliability (see item 3 and 5 of this figure).
9. Low-Level Helicopter Offshore Areas with Inadequate NAVAID's to Conduct Class I Nav or Class II Nav Supplemented by D. R. Procedures	Usually req's B36	Not req'd.	No revenue if aircraft and Nav equip. not previously approved for the area or a similar area for that applicant	Vol 4, chpt. 1, sections 1, 2, and 4.	
10. Politically Sensitive Areas Requiring Special Nav Procedures	B50 Usually req's special provisions and limitations on OpSpecs	AFS-510 and AIA-100 review/concurrence	As directed		

FIGURE 3.9.8.1.B.
QUICK REFERENCE FOR SPECIAL NAVIGATION AUTHORIZATIONS
B. TYPES OF SPECIAL NAVIGATION EQUIPMENT VALIDATION TESTS

SPECIAL AUTHORIZATIONS	OPERATIONS SPECIFICATIONS (OPSPECS) PARAGRAPHS	HIGHER HQTRS REVIEW AND CONCURRENCE	REVENUE PASSENGER CONSIDERATIONS	FAA DIRECTIVES, ADVISORY CIRCULAR (AC) REFERENCES	REMARKS
1. Area Navigation Systems Certificated in Accordance With AC 90-45	B34 and B50 B36 if the system is authorized for Class II Nav	Not req'd.	No revenue if Nav system not previously approved for that applicant and no other approval system used as a primary Nav reference	Vol 4, chpt. 1, sections 1, 2, 3, and 4 AC 90-45 AC 20-101	TBD
2. Loran-C Navigation Systems	B50 B34 if system certificated IAW AC 90-45. B36 if system is authorized for Class II Nav	Not req'd.	No revenue if Nav system not previously approved for that applicant and no other approval system used as a primary Nav reference	Vol 4, chpt. 1, sections 1, 2, 3, and 4 AC 90-79	
3. Omega or Omega/VLF Navigation Systems	B36 and B50 B34 is system certificated IAW AC 90-45. B35 if authorized.	Not req'd.	No revenue if Nav system not previously approved for that applicant and no other approval system used as a primary Nav reference	Vol 4, chpt. 1, sections 1, 2, and 4 AC 90-79 AC20-101 AC 120-37 AC 120-31	
4. Inertial Navigation Systems (INS)/Inertial Reference Systems	B36 and B50 B34 is system certificated IAW AC 90-45. B35 if authorized	Not req'd.	No revenue if Nav system not previously approved for that applicant and no other approval system used as a primary Nav reference	Vol 4, chpt. 1, sections 1, 2, and 4 AC 90-79 AC 121-13 Part 121, Appendix G	
5. Doppler Navigation Systems	B36 and B50	RFSD and Nav specialist review/concurrence	No revenue if Nav system not previously approved for that applicant and no other approval system used as a primary Nav reference	Vol 4, chpt. 1, sections 1, 2, and 4 Part 121, Appendix G	

FIGURE 3.9.8.1.B.—Continued
QUICK REFERENCE FOR SPECIAL NAVIGATION AUTHORIZATIONS
B. TYPES OF SPECIAL NAVIGATION EQUIPMENT VALIDATION TESTS

SPECIAL AUTHORIZATIONS	OPERATIONS SPECIFICATIONS (OPSPECS) PARAGRAPHS	HIGHER HQTRS REVIEW AND CONCURRENCE	REVENUE PASSENGER CONSIDERATIONS	FAA DIRECTIVES, ADVISORY CIRCULAR (AC) REFERENCES	REMARKS
6. Global Positioning Satellite Navigational Systems	TBD	AFS-400	TBD	TBD	TBD
7. Combination of the preceding systems	TBD	TBD	TBD	TBD	TBD

FIGURE 3.9.8.1.C.
QUICK REFERENCE FOR SPECIAL NAVIGATION AUTHORIZATIONS
C. TYPES OF SPECIAL PROCEDURES AND/OR TECHNIQUES VALIDATION TESTS

SPECIAL AUTHORIZATIONS	OPERATIONS SPECIFICATIONS (OPSPECS) PARAGRAPHS	HIGHER HQTRS REVIEW AND CONCURRENCE	REVENUE PASSENGER CONSIDERATIONS	FAA DIRECTIVES, ADVISORY CIRCULAR (AC) REFERENCES	REMARKS
1. Pilotage, Including Dead Reckoning	B50	Not req'd.	Depends of individual situation, area to be approved and inspector judgment	TBD	TBD
2. Flight Navigator Procedures/ Techniques	B36 and B50	RFSD and Nav Specialist review/concurrence	No revenue if flight navigator not previously approved for that applicant	TBD	TBD
3. Celestial Navigation	B36 and B50	RFSD and Nav Specialist review/concurrence	No revenue if this Nav technique/procedure not previously approved for that applicant	TBD	TBD
4. Pressure Pattern Bellamy Drift Dead Reckoning	B36 and B50	RFSD and Nav Specialist review/concurrence	No revenue if this Nav technique/procedure not previously approved for that applicant	TBD	TBD
5. Free Gyro and Grid Procedures	B36 and B50	RFSD and Nav Specialist review/concurrence	No revenue if this Nav technique/procedure not previously approved for that applicant	TBD	TBD
6. Combinations of the preceding procedures/ techniques	TBD	TBD	TBD	TBD	TBD

FIGURE 3.9.8.2.
QUICK REFERENCE FOR SPECIAL NAVIGATION AUTHORIZATIONS VALIDATION TESTS

SPECIAL AUTHORIZATIONS	OPERATIONS SPECIFICATIONS (OPSPECS) PARAGRAPHS	HIGHER HQTRS REVIEW AND CONCURRENCE	REVENUE PASSENGER CONSIDERATIONS	FAA DIRECTIVES, ADVISORY CIRCULAR (AC) REFERENCES	REMARKS
1. Operations Into Areas of Precipitous Mountainous Terrain	TBD	RFSD	TBD	TBD	TBD
2. Part 121 Extended Range Operations With Two-Engine Airplanes (ETOPS) With a Deviation (more than 1 hour)	B42, B50, B36, and A5. B39 required for MNPS airspace	AFS-510	TBD	Vol 4, chpt (TBD) AC 120-42	TBD
3. Part 121 Extended Range Operations With Two-Engine Airplanes (in North Atlantic Airspace Without a Deviation (less than 1 hour)	B41, B50, B36. B39 required for MNPS airspace	AFS-510	TBD	Vol 4, chpt (TBD) AC 120-42	TBD
4. High Altitude Airport Operations	TBD	RFSD	TBD	TBD	High Speed Tires Engines Oxygen Systems Special Performance Data
5. Power Back Operations	C65	Not req'd.			
6. Unimproved Runway Operations	TBD	RFSD for turbojet aircraft	TBD	TBD	TBD
7. Helicopter or Seaplane Operations in Congested City Areas	TBD	TBD	TBD	TBD	TBD

FIGURE 3.9.8.3.
QUICK REFERENCE FOR SPECIAL NAVIGATION AUTHORIZATIONS VALIDATION TESTS

SPECIAL AUTHORIZATIONS	OPERATIONS SPECIFICATIONS (OPSPECS) PARAGRAPHS	HIGHER HQTRS REVIEW AND CONCURRENCE	REVENUE PASSENGER CONSIDERATIONS	FAA DIRECTIVES, ADVISORY CIRCULAR (AC) REFERENCES	REMARKS
1. Category II Approach and Landing Operations	C59	RFSD	N/A	Vol 4, chpt 2 AC 120-29	TBD
2. Category II Approach and Landing Operations	C60	RFSD	N/A	Vol 4, chpt 2, section TBD AC 120-28	TBD
3. Use of Automatic Landing Systems for Landing Operations	C61	Not req'd.	N/A	Vol 4, chpt. TBD FAR 121.579 FAR 135.93	TBD
4. Use of Manually Flown Flight Control Guidance System for Approach and Landing Operations	C62	RFSD	N/A	Vol 4, chpt TBD	TBD
5. Use of Airborne Radar Approach Systems (ARA)	TBD	Not req'd.	NO	Vol 4, chpt TBD	TBD
6. Use of Area Navigation Systems for Approach and Landing Operations	C63	Not req'd.	NO	Vol 4, chpt TBD	TBD

FIGURE 3.9.8.4.
LIST OF APPLICABLE ADVISORY CIRCULARS (AC)

NOTE: Inspectors and test team leaders should consult AC 00-2.6, Advisory Circular Checklist, for the most recent edition of the following AC's.

AC 20-101, Airworthiness Approval of Omega/VLF Navigation Systems for the United States NAS and Alaska.

AC 91-XX, Oceanic Operations. (In final draft at time of publication of Change 8.)

AC 90-45, Approval of Area Navigation Systems for Use in the U.S. National Airspace System.

AC 90-76, Flight Operations in Oceanic Airspace.

AC 90-79, Recommended Practices and Procedures for the Use of Electronic Long-Range Navigation Equipment.

AC 90-92, Guidelines for the Operational Use of Loran-C Navigation Systems Outside the U.S. National Airspace System (NAS).

AC 120-17, Maintenance Control by Reliability Methods.

AC 120-28, Criteria for Approval of Category III Landing Weather Minima.

AC 120-29, Criteria for Approving Category I and Category II Landing Minima for FAR 121Operators.

AC 120-31, Operational and Airworthiness Approval of Airborne Omega Radio Navigation Systems as a Means of Updating Self - Contained Navigation Systems.

AC 120-33, Operational Approval of Airborne Long-Range Navigation Systems for Flight Within the North Atlantic Minimum Navigation Performance Specifications Airspace.

AC 120-37, Operational and Airworthiness Approval of Airborne Omega Radio Navigational Systems as a Sole Means of Long Range Navigation Outside the United States.

AC 120-42, Extended-Range Operation with Two-Engine Airplanes (ETOPS).

AC 121-13, Self-Contained Navigation Systems (Long Range).

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